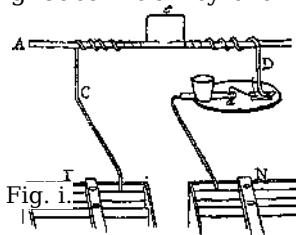


## Faraday's Researches 4

proofs of identity hereafter to be given, these effects of points also prove identity instead of difference between voltaic and common electricity

7. As heated air discharges common electricity with far greater facility than points, I hoped that voltaic



electricity might in this way also be discharged. An apparatus was therefore constructed (fig. i), in which A B is an insulated glass rod upon which two copper wires,

C, D, are fixed firmly; to these wires are soldered two pieces of fine platina wire, the ends of which are brought very close to each other at *e*, but without touching; the copper wire C was connected with the positive pole of a voltaic battery, and the wire D with a decomposing apparatus (48, 52), from which the communication was completed to the negative pole of the battery. In these experiments

only two troughs, or twenty pairs of plates, were used.

8. Whilst in the state described, no decomposition took place at the point *a*, but when the side of a spirit-lamp flame was applied to the two platina extremities at *e*, so as to make them bright red-hot, decomposition occurred; iodine soon appeared at the point #, and the transference of electricity through the heated air was established. On raising the temperature of the points *e* by a blowpipe, the discharge was rendered still more free, and decomposition took place instantly. On removing the source of heat, the current immediately ceased. On putting the ends of the wires very close by the side of and parallel to each other, but not touching, the effects were perhaps more readily obtained than before. On using a larger voltaic battery (6), they were also more freely obtained.

9. On removing the decomposing apparatus and interposing a galvanometer instead, heating the points *e* as the needle would swing one way, and removing the heat during the time of its return (38), feeble deflections were soon obtained: thus also proving the current through heated air; but the instrument used was not so sensible under the circumstances as

10. These effects, not hitherto known or expected

under this  
form, are only cases of the discharge which takes place  
through